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| APPLICATION NO.   | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 10/786,503  | 02/26/2004  | Akira Yoda           | Q79994              | 4316             |
| 23373   | 7590        | 02/27/2007           | EXAMINER            |                  |
| SUGHRUE MION, PLLC<br>2100 PENNSYLVANIA AVENUE, N.W.<br>SUITE 800<br>WASHINGTON, DC 20037 |             |                      | WASHINGTON, JAMARES |                  |
|   |             |                      | ART UNIT            | PAPER NUMBER     |
|   |             |                      | 2609                |                  |
| SHORTENED STATUTORY PERIOD OF RESPONSE  | MAIL DATE   | DELIVERY MODE        |                     |                  |
| 3 MONTHS  | 02/27/2007  | PAPER                |                     |                  |

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

|                              |                        |                     |
|------------------------------|------------------------|---------------------|
| <b>Office Action Summary</b> | <b>Application No.</b> | <b>Applicant(s)</b> |
|                              | 10/786,503             | YODA, AKIRA         |
|                              | <b>Examiner</b>        | <b>Art Unit</b>     |
|                              | Jamares Washington     | 2609                |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on \_\_\_\_\_.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-19 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 26 February 2004 is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
  1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

|  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date: _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>2/26/2004</u> . | 5) <input type="checkbox"/> Notice of Informal Patent Application |
|  | 6) <input type="checkbox"/> Other: _____.                         |

**DETAILED ACTION**

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

*Specification*

2. The disclosure is objected to because it contains embedded hyperlinks and/or other forms of browser-executable code [paragraph 4, 5...]. Applicant is required to delete the embedded hyperlinks and/or other forms of browser-executable code. See MPEP § 608.01.

\*Note – The references to Japanese Unexamined Patent Publications 6(1994)-233020, 20000-253290, 9(1997)-65268 etc...should be updated to reflect respective patent numbers, if applicable.

*Claim Objections*

*Claim Objections - 37 CFR 1.75(a)*

3. The following is a quotation of 37 CFR 1.75(a):

The specification must conclude with a claim particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention or discovery.

Claims 6 and 10 are objected to under 37 CFR 1.75(a), as failing to particularly point out and distinctly claim the subject matter which application regards as his invention or discovery.

Regarding claims 6 and 10, applicant's use of the "and/or" phraseology fails to particularly point out whether applicant intends for the claimed invention to include both aspects or either aspect described. The claims will be construed as "or" for examination purposes. Appropriate corrections should be made in future correspondence.

***Claim Rejections - 35 USC § 101***

4. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

The USPTO "Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility" (Official Gazette notice of 22 November 2005), Annex IV, reads as follows:

Descriptive material can be characterized as either "functional descriptive material" or "nonfunctional descriptive material." In this context, "functional descriptive material" consists of data structures and computer programs which impart functionality when employed as a computer component. (The definition of "data structure" is "a physical or logical relationship among data elements, designed to support specific data manipulation functions." The New IEEE Standard Dictionary of Electrical and Electronics Terms 308 (5th ed. 1993).) "Nonfunctional descriptive material" includes but is not limited to music, literary works and a compilation or mere arrangement of data.

When functional descriptive material is recorded on some computer-readable medium it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized. Compare *In re Lowry*, 32 F.3d 1579, 1583-84, 32 USPQ2d 1031, 1035 (Fed. Cir. 1994) (claim to data structure stored on a computer readable medium that increases computer efficiency held statutory) and *Warmerdam*, 33 F.3d at 1360-61, 31 USPQ2d at 1759 (claim to computer having a specific data structure stored in memory held statutory product-by-process claim) with *Warmerdam*, 33 F.3d at 1361, 31 USPQ2d at 1760 (claim to a data structure per se held nonstatutory).

In contrast, a claimed computer-readable medium encoded with a computer program is a computer element which defines structural and functional interrelationships between the computer program and the rest of the computer which permit the computer program's functionality to be realized, and is thus statutory. See *Lowry*, 32 F.3d at 1583-84, 32 USPQ2d at 1035.

Claims 17, 18, and 19 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Claims 17-19 define a program embodying functional descriptive material. However, the claim does not define a computer-readable medium or memory on which the program resides and is thus non-statutory (i.e., "When functional descriptive material is recorded on some computer-readable medium it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized" – Guidelines Annex IV). That is, the scope of the presently claimed program can range from paper on which the program is written, to a program simply contemplated and memorized by a person. Suggestion is made for amending the claim to embody the program on "computer-readable medium" or

Art Unit: 2609

equivalent in order to make the claim statutory. Any amendment to the claim should be commensurate with its corresponding disclosure.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1-11, and 13-19 are rejected under 35 U.S.C. 102(e) as being anticipated by Geoffrey B. Rhoads (US 2003/0128861 A1).

Regarding claim 1, Rhoads discloses embedding means for embedding the invisible first information in the image (“...the embedder typically operates on a digital image in a particular color space...” at paragraph [177], “In some embodiments, security documents are encoded to convey machine-readable multi-bit binary information...usually in a manner not alerting human viewers that such information is present” at paragraph [270]), and information attaching means for attaching second information, which indicates that said first information is embedded in said image, to said print (“The watermark embedder encodes a watermark signal in a host signal to create a combined signal” at paragraph [24], “The watermark structure can have multiple components, each having different attributes...The components of the watermark structure may perform the same or different functions. For example one component may carry a message, while another component may serve to identify the location or orientation of the watermark in a combined signal...” at paragraph [19], “...one can also construe the components to be different watermarks. This enables the watermark technology described throughout this document to be used in applications using two or more watermarks” at paragraph [23]. The second information will be construed as a “calibration pattern” for purposes of examination (at paragraph [270]). Therefore, one watermark can be used to identify the location of another within the same print by the same embedding means.)

Regarding claim 2, Rhoads discloses the print generating device as rejected in claim 1 above, wherein said information attaching means is means to attach said second information to said print by hiddenly embedding said second information in said image in a different embedding manner than the manner in which said first information is embedded (“The watermark components may be defined, embedded and extracted in different domains” at paragraph [22],

Art Unit: 2609

“In the embodiment earlier-described, the calibration pattern is printed as a visible artistic element of the security document. However, the same calibration effect can be provided subliminally if desired” at paragraph [351]).

Regarding claim 3, Rhoads discloses the print generating device as rejected in claim 1 above, wherein said second information is attached to said print by a visual mark (“...the geometrical calibration pattern in the illustrated embodiment is a visible design feature on the security document” at paragraph [308]).

Regarding claim 4, Rhoads discloses an information detecting device (“The detector looks for the watermark signal...” at paragraph [24]) comprising:

input means for receiving photographed-image data obtained by photographing an arbitrary print...with image pick-up means (“The detector performs a series of preprocessing operations on the native image...It begins by filling memory with one or more frames of native image data...” at paragraph [167], “In applications where a camera captures an input image...” at paragraph [168], “A digital camera or scanner<sup>43</sup> may be used to capture the target image for the detection process described above” at paragraph [252]).

judgment means for judging whether or not second information, which indicates that first information is embedded in an image, is detected from said photographed-image data (“Indeed, the use of such calibration patterns to register both watermark and visible structure image data for recognition is an important economy that can be gained by integration of a visible structure detector and a watermark detector into a single system” at paragraph [383]), and processing means for performing a process for detection of said first information on only the photographed-image data from which said second information is detected (“Another challenge in counteracting

Art Unit: 2609

the effects of the image capture process is dealing with the different types of distortion...The detector can counteract these effects in the pre-processor by using an appropriate inverse transfer function..." at paragraph [183]).

Regarding claim 5, Rhoads discloses the information detecting device as rejected in claim 4 above, further comprising distortion correction means for correcting geometrical distortions contained in said photographed-image data when said processing means is means to perform detection of said first information as a process for detection of said first information ("...dealing with the different types of distortion...cameras have different sensitivities to light. In addition, their lenses have different spherical distortion..." at paragraph [183]), wherein said judgment means and said processing means are means to perform said judgment and said detection on the photographed-image data corrected by said distortion correction means ("At the close of the pre-processing stage (4.1 Detector Pre-Processing, at paragraph [166]), the detector has selected a set of blocks for further processing..." at paragraph [184]).

Regarding claim 6, Rhoads discloses the information detecting device as rejected in claim 5 above, wherein said distortion correction means is a means for correcting geometrical distortions caused by a photographing lens provided in said image pick-up means or geometrical distortions caused by a tilt of an optical axis of said photographing lens relative to said print ("...the watermarked image is likely to undergo several transformations...Some of these transformations include: scaling, rotation, inversion, flipping differential scale, and lens distortion" at paragraph [160]. "When building a detector implementation for a particular application, the developer may implement counter-measures to mitigate the impact of the types of transformations and distortions..." at paragraph [161]).

Art Unit: 2609

Regarding claim 7, Rhoads discloses the information detecting device as rejected in claim 4 above, wherein said processing means is a means for performing a process for transmitting said photographed-image data to a device that detects said first information, as a process for detection of said first information, only when said judgment means detects said second information from said photographed-image data (“...detection watermark...” Fig. 2, numeral 216, “The detection watermark is specifically chosen to assist in identifying the watermark and computing its orientation in a detection operation” at paragraph [103]. Flow chart depicted in Figure 12 shows the transmission of image data after detection of a “detection watermark explained at paragraph [159].)

Regarding claim 8, Rhoads discloses an information-detecting device as rejected in claim 4 above with the print-generating device as rejected in claim 2 above (Desirably, the visible structure detector and the watermark detector are integrated together as a single hardware and/or software tool” at paragraph [378]). Claim 2 rejection above embodies both visible and invisible marks, therefore covering the use of visible marks.

Regarding claim 9, Rhoads discloses the information-detecting device as rejected in claim 8 above, further comprising the distortion correction means and processing means as rejected in claim 5.

Regarding claim 10, Rhoads discloses the information-detecting device as rejected in claim 9 above, wherein the distortion correction means is a means for correcting geometrical distortions as rejected in claim 6.

Regarding claim 11, Rhoads discloses the information detecting device wherein the image pick-up means is a camera provided in a portable terminal as rejected in claim 4 above.

(Currently, there are digital cameras designed to interface with a Universal Serial Bus (USB), Peripheral Component Interconnect (PCI), and parallel port interface” at paragraph [252]).

Regarding claim 13, Rhoads discloses the information detecting device as rejected in claim 4, wherein said first information is location information representing a storage location of audio data correlated with said image (“Watermarking can also be used in various “description” or “synthesis” language representations of content, such as Structured Audio, Csound, NetSound...by specifying synthesis commands that generate watermark data as well as the intended audio signal” at paragraph [391]), and which further comprises audio data acquisition means for acquiring said audio data, based on location information (“Finally, a reader extracts a message in the watermark signal from the combined signal...” at paragraph [24]. “...digital watermarking is applied to media such as...audio signals” at paragraph [15]).

Regarding claim 14, Rhoads discloses the print generating method carried out by the print generating device as rejected in claim 1 above.

Regarding claim 15, Rhoads discloses the print generating method carried out by the print generating device as rejected in claim 2 above.

Regarding claim 16, Rhoads discloses the information detecting method carried out by the information detecting device as rejected in claim 4 above.

Regarding claim 17, Rhoads discloses a program for causing a computer to execute the method as rejected in claim 14 above (“Fig. 20 illustrates an example of a computer system that serves as an operating environment for software implementations of the watermarking systems described above. The embedder and detector implementations are implemented in C/C<sup>++</sup> ...” at paragraph [245]).

Regarding claim 18, Rhoads discloses the program as rejected in claim 17 above and incorporating the method as rejected in claim 2 under the same grounds of rejection as presented in claim 17 rejection.

Regarding claim 19, Rhoads discloses the program as rejected in claim 17 above.

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Geoffrey B. Rhoads (US 2003/0128861 A1) in combination with Hisayuki Yamagata (US 20020018139 A1).

Regarding claim 12, Rhoads discloses an information detecting device as rejected in claim 4 above, wherein said image pick-up means is equipped with display means for displaying said print to be photographed (“A monitor 1247 or other type of display device is also connected to the system by bus 1223 via an interface...” at paragraph [254]. Fig. 20 shows the camera 1243 directly connected to the camera interface, which is a part of the system bus 1223 that leads to

the video adapter 1248. The monitor 1247 is connected to the system bus via the video adapter 1248).

Rhoads fails to teach tilt detection means for detecting a tilt of an optical axis of said image pick-up means relative to print, and display control means for displaying information representing the tilt of said optical axis detected by said tilt detection means, on said display means.

However, Yamagata teaches the above tilt detection means ("An image measurement apparatus according to a preferred embodiment of the present invention comprises a camera, a control mechanism for controlling tilt angle of optical axis of the pertinent camera...and a device for detecting tilt angle of optical axis..." at paragraph [29]).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to include the tilt detection device taught by Yamagata in the image pick-up device of Rhoads so that "detecting accuracy is enhanced" when capturing an image of a watermark. Since the watermark detector performs a series of correlation or other operations on the captured image to detect the presence of a watermark, it is critical to get an accurate representation of the mark.

In addition, Rhoads teaches a video adapter (Fig. 20, numeral 1248) for controlling what will be displayed on the monitor.

However, Rhoads does not teach display control means for displaying information representing the tilt of said optical axis detected by said tilt detection means, on said display means.

However, Yamagata discloses the above control means ("An image processing signal stored in the image memory 43 is computed in an image CPU 44, and outputted to an image monitor through a D/A (Digital/Analog) converter 45 to display an image. The aforesaid host CPU 32 conveys image data to the image CPU 44 and to a motor controller 36 and at the same time performs a series of jobs including adjustment of optical axis..." at paragraph [77]) for displaying information representing the tilt of said optical axis.

It would have been obvious at the time the invention was made to one of ordinary skill in the art to use the D/A converter as taught by Yamagata as the video adapter disclosed by Rhoads to provide a way of displaying the information representing the tilt of said optical axis detected by said tilt detection means because it would allow the viewer to see the through image of the camera, an image to be processed, and a result of processing to compare the corrected image with the original.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jamar Washington whose telephone number is (571) 270-1585. The examiner can normally be reached on Monday thru Friday: 7:30am-5:00pm.

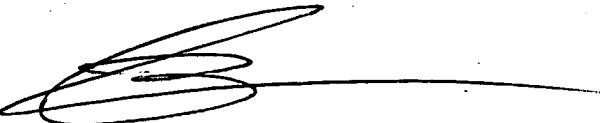
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Werner can be reached on (571) 272-7401. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2609

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Jamares Washington  
Junior Examiner  
Art Unit 2609

JW



BRIAN WERNER  
SUPERVISORY PATENT EXAMINER